United States Department of Agriculture	Forest Service	Wallowa-Whitman National Forest	La Grande Ranger District 3502 Highway 30 La Grande, OR 97850

Date: 06/05/2020

Subject: Five Points Fuels Reduction Project – Fire/Fuels Existing Conditions

To: Five Points IDT

The purpose of this report is to describe the existing conditions in the Five Points Fuels Reduction project area.
Information sources used to complete this report include:

- National Cohesive Wildland Fire Management Strategy (Cohesive Strategy)
- Wallowa-Whitman Land and Resource Management Plan
- Forest GIS layer and oracle database (based on stand exams), and field reconnaissance.
- Fuels Management Analyst Suite (FMA+)
- Fire Regime Condition Class Guidebook
- Fuels Characteristic Classification System (FCCS)
- Union County Community Wildfire Protection Plans (CWPP)

PROJECT AREA DESCRIPTION

The Five Points Fuels Reduction project area is approximately 4638 acres in size and located on the Wallowa-Whitman National Forest. The project area is approximately 5 miles northwest of La Grande, Oregon. Elevation ranges from 3175 feet along Five Points Creek to approximately 5300 feet on Mt Emily in the northeast corner of the project area.

BACKGROUND

A century of grazing, timber harvesting and fire exclusion have interacted to alter the structure, composition, and disturbance regimes within the project area. Many of the forested stands within the project area lack a large tree component and are comprised of a dense understory of fire intolerant tree species. These changes have contributed significantly in shifting disturbance regimes toward less frequent, but larger and more severe disturbance events. The existing stand structure and fuels characteristics provide an elevated risk of a wildfire originating in the Mt. Emily Inventoried Roadless Area (IRA) burning onto the adjacent privately owned lands within the La Grande Valley Wildland Urban Interface.

Cohesive Wildfire Strategy (CWS)

In 2009, Congress passed the Federal Land Assistance, Management, and Enhancement Act (FLAME Act), which directs the U.S. Department of Agriculture (USDA) and the Department of the

Interior (DOI) to develop a national cohesive wildland fire management strategy to comprehensively address wildland fire management across all lands in the United States. Under the direction of the intergovernmental Wildland Fire Leadership Council (WFLC), the National Cohesive Wildland Fire Management Strategy effort (Cohesive Strategy) was initiated in 2010 through a three-phased approach to planning, risk analysis, and collaboration by Federal, state, local and tribal governments and non-governmental partners and public stakeholders.

The National Strategy recognizes and accepts fire as a natural process necessary for the maintenance of many ecosystems and strives to reduce conflicts between fire-prone landscapes and people. By simultaneously considering the role of fire in the landscape, the ability of humans to plan for and adapt to living with fire, and the need to be prepared to respond to fire when it occurs, the Cohesive Strategy takes a holistic approach to the future of wildland fire management.

The Wildland Fire Leadership Council (WFLC) adopted the following vision for the next century:

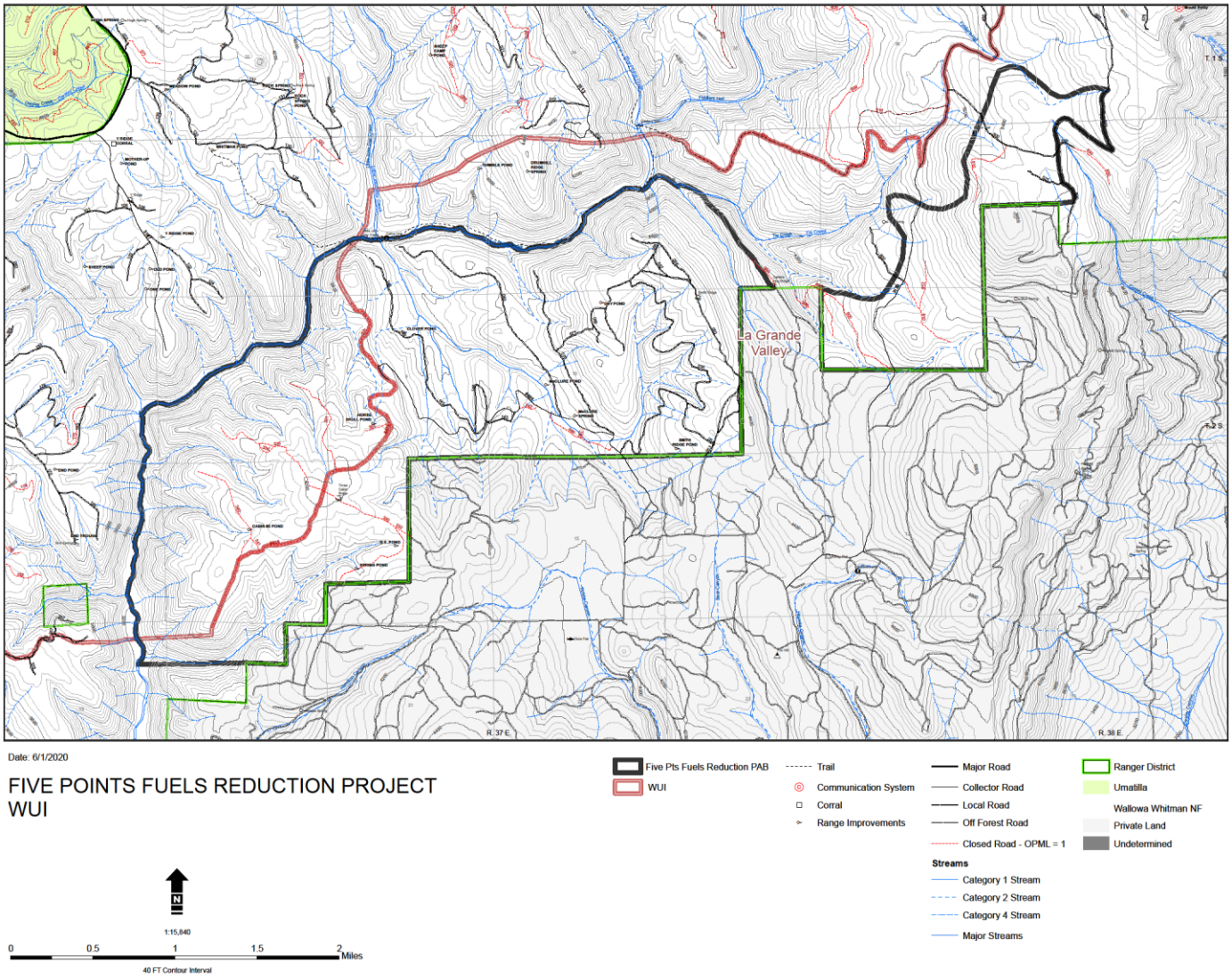
> ***To safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.***

The primary, national goals identified as necessary to achieving the vision are:

> **Restore and maintain landscapes**: Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
>
> **Fire-adapted communities**: Human populations and infrastructure can withstand a wildfire without loss of life and property.
>
> **Wildfire response**: All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions. Stakeholders collaboratively established the following guiding principles and core values for wildland fire management to guide fire and land management activities:
>
> - Reducing risk to firefighters and the public is the first priority in every fire management activity.
> - Sound risk management is the foundation for all management activities.
> - Actively manage the land to make it more resilient to disturbance, in accordance with management objectives.
> - Improve and sustain both community and individual responsibilities to prepare for, respond to, and recover from wildfire through capacity-building activities.
> - Wildland fire, as an essential ecological process and natural change agent, may be incorporated into the planning process and wildfire response.
> - Fire management decisions are based on the best available science, knowledge, and experience, and used to evaluate risk versus gain.
> - Local, state, tribal, and Federal agencies support one another with wildfire response, including engagement in collaborative planning and the decision-making processes that take into account all lands and recognize the interdependence and statutory responsibilities among jurisdictions.
> - Where land and resource management objectives differ, prudent and safe actions must be taken through collaborative fire planning and suppression response to keep unwanted wildfires from spreading to adjacent jurisdictions.

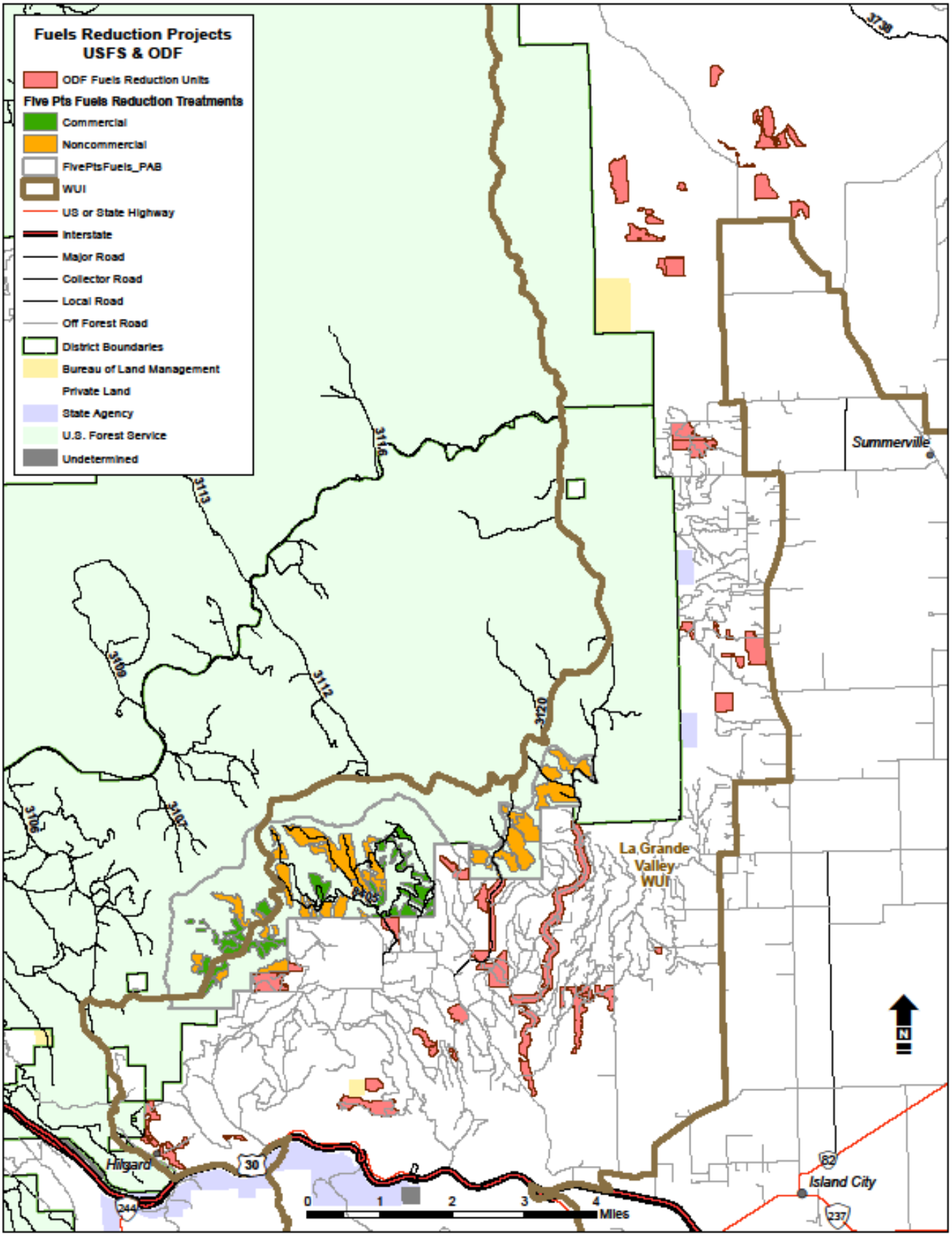
La Grande Valley Wildland Urban Interface

The Wildland-Urban Interface (WUI) is the area or zone where structures and other human development meet or intermingle with wildland or vegetative fuels. The Union County Wildfire Protection Plan is the result of a detailed analyses, professional contributions, collaboration, and wild fire risk assessments. The contributed information was analyzed with the intent to reduce the potential for wildfires that threaten people, structures, infrastructure and values in Union County. There are 3430 acres of the La Grande Valley WUI within the project area.



Intergovernmental Coordination

The five Points Fuels Reduction project is a key part of a much broader effort to reduce fire behavior and risk to private property within the Mt. Emily portion of La Grande Valley WUI. There is currently a collaborative effort involving the Forest Service, ODF, NRCS, and Union County in an effort to leverage and pool funding to reduce risk to private landowners by creating a cross boundary strategic fuels break.

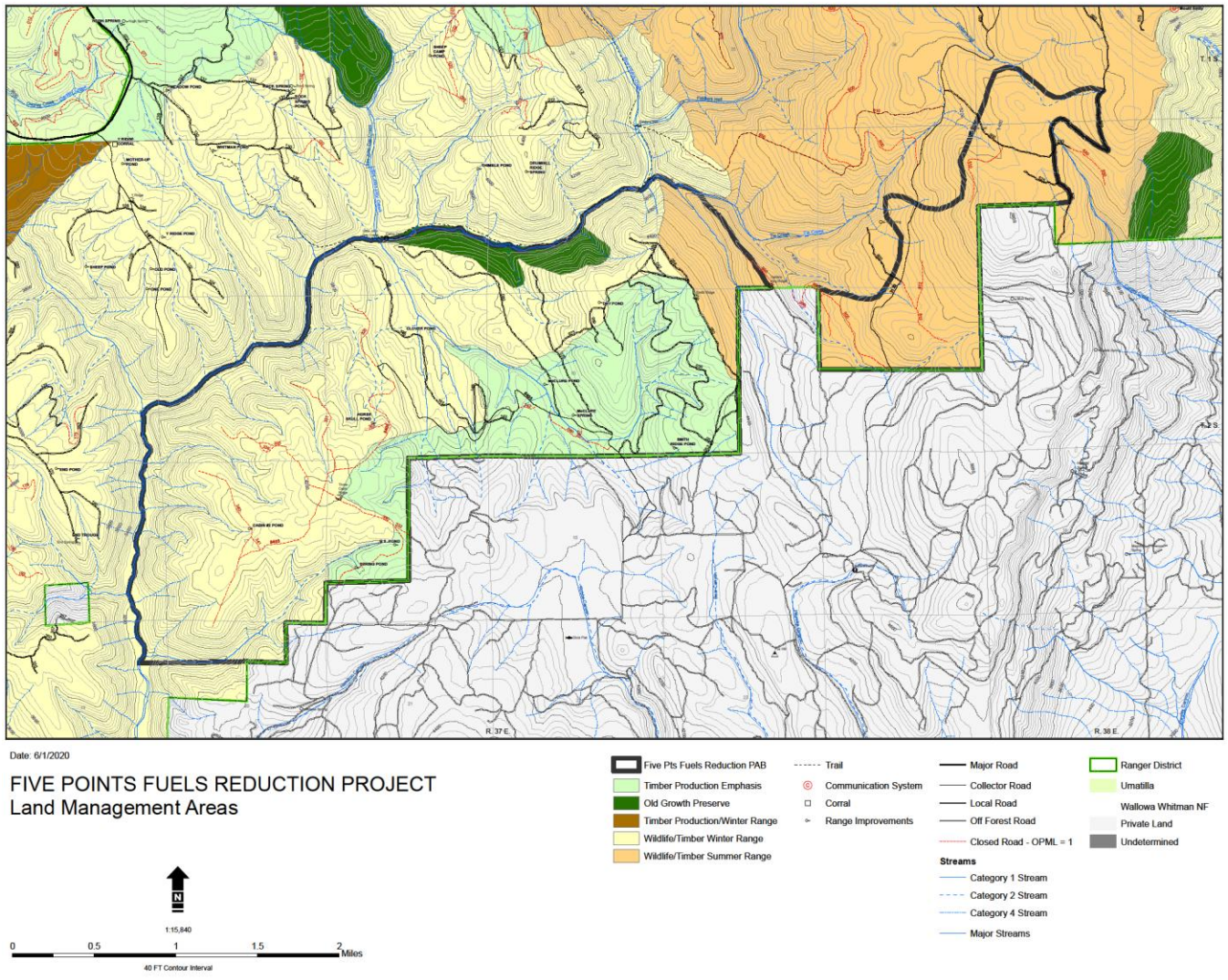

Fuels Reduction Projects
USFS & ODF
ODF Fuels Reduction Units
Five Pts Fuels Reduction Treatments
Commercial
Noncommercial
FivePtsFuels_PAB
WUI
US or State Highway
Interstate
Major Road
Collector Road
Local Road
Off Forest Road
District Boundaries
Bureau of Land Management
Private Land
State Agency
U.S. Forest Service
Undetermined
3738
3114
3113
3109
3112
3120
3106
3107
Summerville
La Grande
Valley
WUI
N
Hilgard
30
244
82
Island City
237
0
1
2
3
4
Miles

EXISTING CONDITIONS

Management Areas

Management Area descriptions, specific direction and guidance relating to fire management are described below. The following three management areas (MA) represent the bulk of the acres within the Five Points project boundary:

Management Area	Acres	% of Project Area
1	1,032	22
3 / 3a	3477	75
15	132	3
Other	7	0
	4,648	**100**



MA1 - Timber Production Emphasis (22%)

Management emphasizes wood fiber production on suitable timber lands while providing relatively high levels of forage and recreational opportunities. Temporary forage increases result from silvicultural activities. Timber is managed according to Forest-wide standards and guidelines.

Direction

- Use prescribed burning from planned ignitions to accomplish fire protection, site preparation, silvicultural, wildlife, and livestock objectives.
- In ecosystems where fire is not a useful treatment tool, fuel treatments other than burning will be used to reduce fuel accumulations to meet resource management objectives.
- Prescribed fire from unplanned ignitions will not be used due to the high resource values and the difficulty in controlling ignitions.
- Design suppression practices to protect the investment in managed tree stands and to prevent losses of large acreages to wildfire. This area is high priority for suppression of wildfires.
- Avoid felling snags that do not present a hazard to life or a threat to successful suppression action.
- The minimum acceptable suppression for wildfires at all Fire Intensity Levels (FIL's) will be "contain".

Management Area Guidance

- All techniques and equipment are appropriate for use in suppressing wildfire, dependent upon the fire intensity level and protection needs of the timber stand.
- The broadest application of prescribed fire will be in ponderosa pine stands.
- Some slash and larger dead material will be left as ground cover for soil protection, microclimates for the establishment of trees, and small mammal habitat.
- Fuel loading will consist of natural accumulations except as modified by prescribed fire.

MA3 and MA3A – Wildlife/Timber Emphasis (75%)

Management Area 3 is similar to MA-1 and emphasizes wood fiber production. However, timber management is designed to provide near optimum cover and forage conditions for big game summer and winter ranges.

Direction

- Favor prescribed fire slash treatment methods when feasible. Prescribed fire from both planned and unplanned ignitions will be used to achieve winter range management objectives, and maintain diversity within plant communities.

- The minimum acceptable suppression response will be "confine' on FIL1-2-3 and contain on FIL 4 and greater.

Management Area Guidance

- All techniques and equipment are appropriate for use in suppressing wildfire, dependent upon the fire intensity level and protection needs of the timber stand.
- The broadest application of prescribed fire will be in ponderosa pine stands.
- Some slash and larger dead material will be left as ground cover for soil protection, microclimates for the establishment of trees, and small mammal habitat.
- Fuel loading will consist of natural accumulations except as modified by prescribed fire.

MA15 – Old Growth Preservation (3%)

These areas are intended to maintain habitat diversity, preserve aesthetic values, and to provide old growth habitat for wildlife.

Direction

- The minimum acceptable suppression response will be "contain' on all FIL's.
- This management area does not contribute to the Forest's allowable sale quantity.

Mt. Emily Roadless Area (7960 acres)

A portion of the Mt. Emily Inventoried Roadless Area (IRA) is incorporated into the analysis area. The IRA is located 6 miles northwest of La Grande is accessible via forest service roads 3120 and 8405. It includes the Grande Ronde River/Five Points Creek watershed and contains the upper reaches of Five Points Creek which drains the area. The area has moderate to heavy surface fuels and above average fire occurrence rate. The combination of fuels and topography in this area are conducive to large wildfire development. Due to close proximity of private property and improvements on that property a very aggressive fire suppression strategy program has been utilized within this IRA.

Fire Regimes

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human intervention but including the possible influence of aboriginal fire use. The five natural fire regime groups are classified based on the average number of years between fires combined with characteristic fire severity reflecting percent replacement of dominant overstory vegetation (FRCC Guidebook, 2010). The five natural fire regimes are defined as follows:

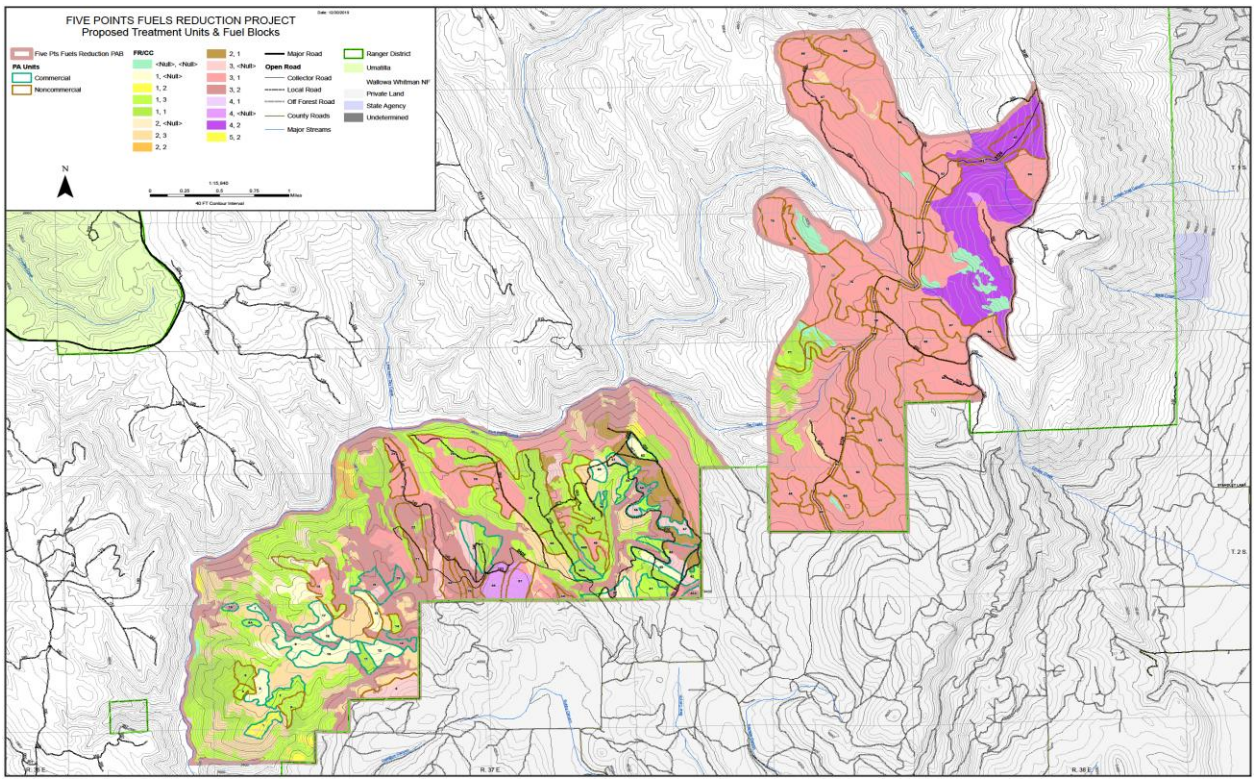
Fire Regime Groups and Descriptions				
Fire Regime Group	**Vegetation Types**	**Frequency (Fire Return Interval)**	**Representative Potential Natural Vegetation Group (PNGV)**	**Severity**
1	All ponderosa pine types; Dry-Douglas fir/ pine grass; and grand fir/pine grass.	0 – 35 years	(PPDF1) Ponderosa pine Douglas-fir Inland Northwest	Low severity

Fire Regime Groups and Descriptions				
Fire Regime Group	**Vegetation Types**	**Frequency (Fire Return Interval)**	**Representative Potential Natural Vegetation Group (PNGV)**	**Severity**
2	True grasslands	0 – 35 yrs.	(MGRA1) Mountain Grassland	Stand replacing, high severity
3	Mixed Conifer	35 – 200+ yrs.	(GFDF) Grand fir – Douglas fir	Mixed severity
4	Lodge pole pine, western larch, spruce	35 – 200+ yrs	(SPFI5) Interior West Lower Subalpine Forest	Stand replacing, high severity
5	Wet meadows, discontinuous grass scabs on ridge tops	Greater than 200 years	(RIPA) Riparian	Mixed severity

Fire Regime Condition Class (FRCC) is a classification of the degree of departure from natural fire regime. The fire regime condition class classification is based on a relative measure describing the degree of departure from the historical natural fire regime. The departure can result in changes to one or more of the following ecological components: vegetation (species composition, structural stages, stand age, canopy cover and mosaic pattern across the landscape); fuel composition; fire frequency, severity, and pattern.

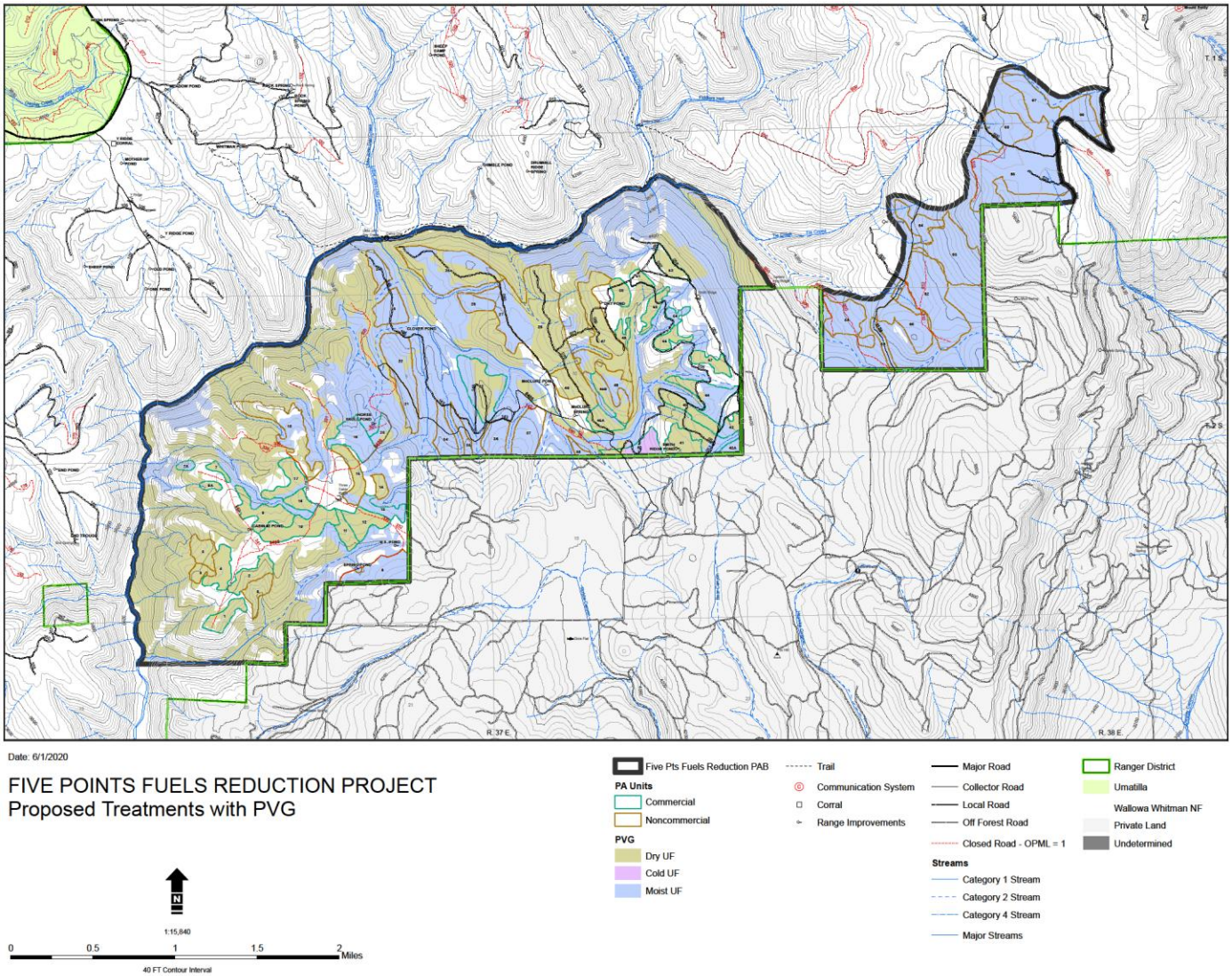
Condition Class	**Description**
1	Represents ecosystems that are still within the historical range.
2	Represents ecosystems which been moderately altered from the historical range
3	Represents ecosystems which have been substantially altered from the historical range.

Existing Fire Regime and Conditon Class acres within the Project Area					
Condition Class	Fire Regime (acres)				% of project area
	1	**2**	**3**	**4**	
1	541	118	1,252	2	**42**
2	28	21	784	20	**19**
3	868	522	0	0	**30**
UnClassified	216	34	121	52	**9**
% of project area	**36**	**15**	**47**	**2**	**100**



Potential Vegetation Groups: potential vegetation group (PVG) is an aggregation of plant association groups (PAGs) with similar environmental regimes and dominant plant species. Each aggregation (PVG) typically includes PAGs representing a predominant temperature or moisture influence (Powell 2000).

PVG Groups within the Project area *(Upland Forest Only)*		
PVG	Acres	% of project area
Cold Upland Forest	13	.5
Dry Upland Forest	1,671	36
Moist Upland Forest	2,198	48
Other	707	15.5



EXISTING FIRE BEHAVIOR WITHIN THE PROJECT AREA.

The fire environment includes existing topography, weather and available fuels (vegetation). These elements together define fire behavior.

Topography: Topographical influences on fire behavior include slope, aspect, wind speed, and wind direction. Slopes in this project area are quite steep in the Five Points Creek drainage, in some areas in excess of 70%. Slope increases fire behavior by preheating fuels upslope of the fire and enabling spotting from rolling and aerial fire brands. Flame length and rate of spread increase with increasing slope. Aspect is the direction a slope faces. All aspects are represented in this analysis area. South and Southwest aspects typically experience fire more frequently due to the duration of sun exposure. North aspects typically have higher levels of biomass/fuels and are susceptible to high intensity wildfire during the late summer months.

Weather: Summers are typically hot and dry with day time temperatures in the high 80's to lower 90's Fahrenheit with relative humidity's in the teens (with poor overnight recovery).

Lightning caused fires primarily occur in the months of July and August. These storms often produce strong winds with little or no precipitation. Of particular concern are the strong gusty winds associated with a frontal passage, especially dry cold fronts. The following weather parameters represent conditions that can generate a large wildfire within the project area.

Large Wildfire Environmental Conditions	
Temperature (F)	85
Relative Humidity (%)	15
1 hour fuel moisture (%)	2
10 hour fuel moisture (%)	3
100 hour fuel moisture (%)	4
1,000 hour fuel moisture (%)	8
Foliar Moisture Content (%)	105
20' Level Wind speed (mph)	20
The environmental conditions for the area were derived from historical weather data from the Johnson Ridge Remote Automated Weather Site (RAWS) and observations from past large wildfires.	

Fuels: This is the only component of the fire environment that can be altered by management actions. Many elements of fuels work together to influence fire behavior including: vertical and horizontal distribution, continuity, moisture, chemical content, compaction and loading. All of these elements but chemical content can be modified to reduce fire behavior.

Surface Fuels: Surface Fuels have been classified into six groups – grasses, shrubs, grass-shrub mix, timber litter, timber understory, and slash or blowdown. The differences in fire behavior among these groups are related to fuel load and its distribution among the fuel classes. Fuel load and depth are significant properties for predicting whether a fire will be ignited, its rate of spread, and its intensity. The amount of surface fuel is a measure to help determine a surface fire's potential to spread into canopy. Surface fuel loading is one of the primary components used to predict fire intensity and potential fire behavior. The four Fire Behavior Fuel Models (Scott and Burgan, 2005) listed below represent the bulk of surface fuels within the project area.

GR2 – The primary carrier of the fire is grass, though small amounts of fine dead fuel may be present.

GR4 – The primary carrier of the fire is dry grass, fuel bed depth is about 2 feet.

TU5 - The primary carrier of the fire is heavy forest litter with a shrub or small tree understory. Moderate spread rates and intensity.

TL8 – The primary carrier of the fire is long needle pine litter. Spread rate moderate with low fire intensity.

Fuel Model	% of Project Area
GR2	15
GR4	6
TU5	50
TL8	20
Other	9
Total	**100**

Crown Fuels: Crown fuels are defined as the live and dead material in the canopy of trees. Canopy bulk density is used for determining if a fire reaching into the canopy has sufficient fuel to support a crown fire. Neither crown nor canopy bulk density can be directly measured. Instead they are mathematically estimated based on individual tree characteristics such as tree height and crown ratio (Fire and Fuels Analysis to Support Project Planning, Langowski, May, 2002). Overstocked conditions can be an indication of high canopy bulk density.

Ladder Fuels: Ladder fuels are intermediate shrubs, bushes, and trees that bridge the vegetation gap between surface fuels and tree crowns; thus the term ladder fuels. Canopy base height is the average height of the base of the tree crowns from the surface and would be used as a tool to measure ladder fuels. Flame length (related to surface fuels) and canopy base height can be used to estimate whether fire can travel into a tree crown.

Fire Behavior Modeling Groups

The stands within the project area were grouped into three modeling groups based on PVG, surface fuel loadings, crown fuel characteristics and potential fire behavior. Field inventory was completed on representative stands within each of the modeling groups to gather surface and crown fuel data. This data was then extrapolated to all the stands within each of the modeling groups and input into fire behavior models. The following table displays how the modeling groups were defined.

Modeling Group	PVG	Species description	Fire Regime / Condition Class	FCCS Fuel Bed	Fuel Model
1	DUF	Warm Dry Ponderosa Pine	1/2	1658	TL8
2	DUF	Ponderosa pine - Douglas fir	1/3	1518	TU5
3	MUF	Grand fir- Douglas fir	3/2	1538	TU5

Fire Behavior Characteristics definitions

Canopy base height – The lowest height above the ground above which there is sufficient canopy fuel to propagate fire vertically (Scott and Reinhardt 2001).

FCCS Fuel Bed – The inherent physical characteristics of fuels that contribute to fire behavior and effects. Fuel Characteristic Classification System (FCCS) describes fuelbeds in 6 horizontal layers including canopy, shrubs, nonwoody fuels, woody fuels, litter, lichen-moss, and ground fuels. Each layer, or stratum, is further divided into one or more categories to represent the complexity of wildland and managed fuels.

The FCCS was used to represent the past, current and future conditions of the vegetation within the project area. A list of fuel beds was created representing major forest types, common management activities and natural disturbances. The following fuels beds were used to help define fire behavior modeling groups.

FCCS Fuel Bed 1518 – Warm, dry Douglas fir, ponderosa pine, grand fir forest. Stands are 25 to 40 years old, composed of low density of seedlings and saplings and

have not managed since initiation. Douglas fir and ponderosa pine co-dominate the ovestory and grand fir and Douglas fir co-dominate the regengeration layer.
FCCS Fuel Bed 1538 – Cool, moist, grand fir forest. Established between 30 - 60 years ago after a wildfire or clear cut and has no subsequent management. The majority of the moist forest stands which received a regeneration harvest in the 1980's and 1990's are best descibed by this fuel bed.

FCCS Fuel Bed 1658 – Warm, dry ponderosa pine forest. Occurs at low elevations in the mountains of northeastern Oregon. Established 40 to 80 years ago after wildfire and salvage logging with no subsequent management. High stand density.

Crown Fire Potential – The potential for fire to reach canopy layer and to carry through the canopy.

Fire rate of Spread – Distance a fire will spread in one hour.

Fire Flame Length – The length of the flame in a spreading fire within the flamimg front.

Spotting Distance from Torching Trees – Heavy accumulations of surface fuels and/or crown fuels increase the potential for spotting to occur. Spotting occurs when sparks or embers are carried by convection columns and/or wind or gravity starting new fires beyond the main fire. The maxium distance that one can expect potential spot fires resulting from firebrands from torching trees.

Stand data and field reconnaissance were utilized in multiple fire behavior modeling programs to determine existing fire behavior for each modeling group. The following tables display stand characteristics and existing fire behavior at the 97 percentile weather for each modeling group.

Existing Fire Behavior Characteristics			
Modeling Group	1	**2**	**3**
Representative Fuel Model	TL8	TU5	TU5
FCCS Fuels bed	1658	1518	1538
Fire Rate of Spread (ch/hr)	11	49	51
Fire Flame Length (ft)	5	49	50
Basal Area	103	100	169
Canopy Base Height	11	1	1
Size of fire in acres one hour after ignition	4	77	81
Canopy Bulk Density	.0023	.0040	.0042
Fire Type	Surface	Passive Crown	Passive Crown

FIRE HISTORY

Fire Occurrence: The Fire Occurrence rate equals the number of fires per year per 1,000 acres. The rate is used to compare average fire occurrence per year on a relative basis. The Wallowa-Whitman National Forest (WWF) has one of the highest wildfire occurrence rates in Oregon and Washington. The Five Points project area had 25 documented ignitions from 1970 through 2020.

The project area has a fire occurrence rate significantly higher that what is typically found throughout the WWF.

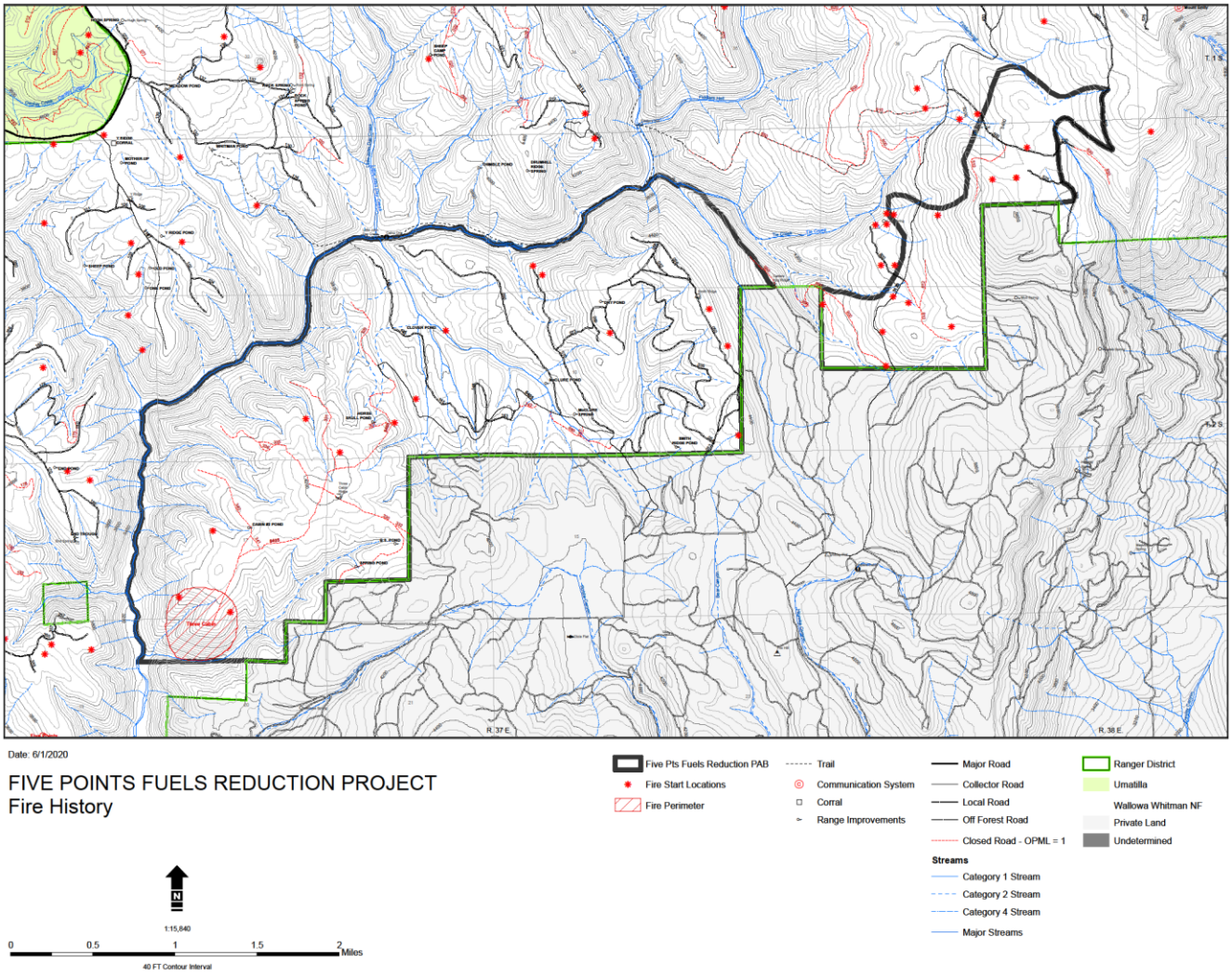
Comparison of Average Annual Fire Frequencies and Occurrence Rates		
Years	**W-W Forest**	**Five Points Project Area**
Average Annual Fire Frequency	139.0	.51
Fire Occurrence Rate per 1,000 acres	.06	.11

The Five Points project area is just a short drive from the city of La Grande and recieves a high amount vistor use from early spring to late fall. 52% of the fire starts within project area are human casued.
The majority of these being warming fires that were left unattended. Although forest vistors have started the majortiy of the wildfires, the two largest wildfires (7 and 105 acres) were caused by lightning. Wildfire suppression has been very successful within the project area over the past 50 years, only 2 wildfires in that time period have exceeded ½ acre in size.
The following tables display fire statistics for the analysis area from **1970 – 2020**

Past Fire by Size Class			
Size Class		**Total # of Fires**	**% of Fires**
A	Spot - .25 acres	21	84
B	.26 - 9.9 acres	3	12
C	10 – 99.9	0	0
D	100 – 299.9	1	4
E	300 - 999	0	0
F	1000 - 4,999	0	0
G	5000 +	0	0
	TOTAL	**25**	**100**

Fire Cause			
Statistical Cause	**Code**	**Total # of fires**	**Percent of Fires**
Lightning	1	12	48
Equipment	2	1	4
Camp Fire	3	0	0
Warming Fire	4	9	36
Debris Burning	5	0	0
Railroad	6	0	0
Arson	7	0	0
Children	8	0	0
Other	9	3	12
	TOTAL	**25**	**100**

Wildfire ignition points of orgin and large fires within or adjacent to project area
There has only been one recent large wildfire within this project area. The Three Cabin Fire occurred in 1986 and burned 105 acres in the south western portion of the project area.



Air Quality

The primary national forest activity in the Wallowa-Whitman National Forest influencing air quality is smoke production from wildfires and prescribed fires. Wildfires are recognized as a natural part and a recurring process in fire-dependent ecosystems. Some of the primary objectives of managed fuel reduction activities are to reduce the total amount of annual smoke emissions otherwise brought about by wildfires, to reduce the risk of high-severity and high intensity wildfires, and to lower the potential of wildfire smoke impacts to local communities and other smoke-sensitive areas. Smoke, including fine particulate emissions from fire (planned and unplanned ignitions), results in reduced visibility and haze at lower concentrations and can be hazardous to human health at moderate concentrations.

The project area is located approximately 5 air miles northwest of the ctiy of La Grande and 23 air miles to the west of the Eagle Cap Wilderness". All proposed activities must follow the federal Clean Air Act (CAA), as amended. The CAA is the legal system designed to protect human health (such as respiratory effects) and public welfare (such as visibility). The CAA establishes major air quality goals, and provides means and measures to attain those goals by addressing existing and potential air pollution problems. The Environmental Protection Agency (EPA) has the responsibility and authority to establish regulations and standards for carrying out the provisions of the Act.

Region 10 of EPA covers Oregon, Washington, and Idaho.

Smoke generating activities in the project area must be coordinated with the Oregon Department of Forestry Smoke Management Division. The following areas are considered smoke sensitive areas:

1. Eagle Cap Wilderness (class 1 air shed) - Visibility protection during the peak recreational period of July 1, through September 15.
2. The cities of La Grande and Cove.

Monitoring sites: Air quality monitoring sites are located in the cities of La Grande and Cove.

CLIMATE CHANGE:

The earth has entered an area of rapid environmental changes. The warming and drying trend predicted under the climate change scenarios will also increase the likelihood of fires. These fires will be larger and more severe, especially at higher elevations. There will be fewer trees regenerating after a fire due to increased regeneration mortality from higher insect and pathogen activity *(Forest, Insect & Pathogens and Climate Change: Workshop Report, Beukema 2007).* Vegetation management actions will need to integrate adaptation strategies (actions that help ecosystems accommodate changes adaptively) and mitigation strategies (actions that enable ecosystems to reduce anthropogenic influences on global climate) into project design *(Climate change and Forest of the Future: Managing in the Face of Uncertainty, Milar, 2007*).

Adaptive strategies include:

1. Resistance options – manage forest ecosystems and resources so that they are better able to resist the influence of climate change or to stall undesired effects of change.
2. Promote resilience to change – resilient forests are those that not only accommodate gradual changes related to climate but tend to return toward a prior condition after disturbance either naturally or with management assistance. Promoting resilience is the most commonly suggested adaptive option discussed in a climate-change context *(Dale et al. 2001, Price and Neville 2003, Spittlehouse and Stewart 2003).* Forest management techniques such as prescribed burning or thinning dense forest, can make forest more resilient to wildfire and decrease fire emissions.
3. Enable forest to respond to change – This group of adaptation options intentionally accommodates change rather than resists it, with a goal of enabling or facilitating forest ecosystems to respond adaptively as environmental changes occur *(Milar, 2007).*

The following are mitigations strategies/actions that would enable ecosystems to reduce anthropogenic influences on global climate:

1. Sequester carbon
    - Restore healthy forest so that carbon can be efficiently stored in live trees.
2. Reduce emissions – Wildfire and extensive forest mortality as a result of insect and disease are primary sources of unintentional carbon emissions from forests in the western United States *(Stephens 2005).*
    - Reduce density of small diameter trees. One means of slowing the release of sequestered carbon is to increase forest resistance to fire, drought, and disease, by reducing the density of small trees *(Stephens and Moghaddas, 2005)*.

- Reduce emissions from wildfires and prescribed burns by reducing surface fuel loading prior to burning.

DESIRED FUTURE CONDITION

Fire Behavior in Strategic Fuels breaks

Vegetation conditions and surface fuel loading within the strategic areas along ridegtops and/or adjacent to road systems will have surface fuel loadings, canopy base heights, canopy bulk densities that are unlikely to support a high intensty crown fire. The completed treatments would modify fire behavior to improve fire management response opportunities, improve firefighter and public safety, while reducing the wildfire threat to private property.

Fire Resilent Landscapes

It is desired that fire regimes return to or are maintained within their historical range of frequencies (in years) and exhibit fire behavior, effects and other associated disturbances similar to those that occurred prior to fire exclusion. Stand conditions and structure are ecologically resilient, sustainable, and compatible with desired levels of disturbance processes.

Desired Fire Behavior in Fire Regime 1 & 3		
Fire Rate of Spread (chains/hr)		<5
Fire Flame Length (feet)		<2
Canopy Base Height (ft)		>10
Fire size 1 hour after ignition (ac)		<2
Canopy Bulk Density (lbs/ft3)		<.0023
Surface Fuel Loading 0-3” diameter (tons/ac)		3-6
FCCS Fire Potential Code	Surface Fuels	<3
	Crown Fire	<4
	Available Fuel Potential	<4

Stop #1, Modeling group 2

Discussion

- Likely a fuels unit based on small diameter timber and low volume stand
- Would like to investigate use of stewardship funds or get creative with logging systems
- Winter logging highly favored for this kind of stand for soils/wildlife/botany
- Would like to remove white fir understory that competes with larger fire resilient trees

Stop #2, Modeling group 2

Discussion

- Evidence of past management - Large springboard stumps.
- We found pine stumps across the unit, and are widely spaced out indicating a much different site historically.
- Acknowledged presence of twin flower, revealing site potential may support fir encroachment on a temporary basis, but not with stability or forest health

Stop #3, Modeling group 1

Discussion

- Dry pine stand, treated under Sugar EA
- Stand density still very high, old stumps and “flower pot” showing evidence of historic stand conditions
- Invasive grasses drastically alter fire behavior potential on this side of project area
- Private land very near this stand

Stop 4, Modeling Group #3

Discussion

- Top of Mt Emily
- Thin out understory encroaching on larch
- Good first foods enhancement opportunity for huckleberries

Other Considerations

- Close gated entrance to the 8405 from Nov-April to enhance elk winter range. Once treated, habitat will be improved, but may not be effective habitat if motorized use lingers in the area. Gate was installed as part of Three Cabin TMA established in '80s, but closure never implemented.
    - This is a discussion for a different project, requiring the use of a different CE.
- Smoke management an ongoing concern for Rx burning
- The location of this project area helps set up future fire management strategies for the Mt Emily IRA
- Project location ties other major fuels reduction efforts together; Trail, Sugar, Mt. Emily Fuels Reduction, state and county efforts to reduce fuels
- Project activities contained to areas previously treated and will stay out of IRAs